EPA Region 7 TMDL Review

TMDL ID	320	*Water Body ID*	MOWBID 2787
Water Body Name	McKenzie Creek		
Pollutant	pH		
Tributary			
State	MO	*HUC*	11010007-060001
Basin	Black River		
Submittal Date	10/14/2004		
Approved	yes		

Submittal Letter

State submittal letter indicates final TMDL(s) for specific pollutant(s)/ water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act.

Received on October 14, 2004; submitted as a final TMDL document under a cover letter dated October 7, 2004.

Water Quality Standards Attainment

The water body's loading capacity for the applicable pollutant is identified and the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources is described. TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.

The pH water quality standards require contaminants shall not cause the pH to be outside the range of 6.5 to 9.0 SU, the beneficial use is the protection of aquatic life. The allocations are set with a margin of safety, at the WQS criteria levels, which are adequate to result in attainment of the applicable WQS.

Numeric Target(s)

Submittal describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, site specific if possible, was developed from a narrative criterion and a description of the process used to derive the target is included in the submittal.

The beneficial uses of McKenzie Creek are described, and the WQS for those beneficial uses are described. The targets are taken directly from the water quality criteria in Missouri's water quality standards for pH.

Link Between Numeric Target(s) and Pollutant(s) of concern

An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided, if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.

The numeric targets are the water quality criteria for pH. The relationship between the numeric targets and the pollutants is direct.

Source Analysis

Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, non point and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered.

The sources of acid (pH) is described. The major contribution was determined to be local precipitation (unbuffered acid rain partially attributable to sulfur dioxide emissions) and flood plain soils. The submittal demonstrates that all significant sources of acidity (pH) were identified and considered.

Allocation

Submittal identifies appropriate wasteload allocations for point, and load allocations for nonpoint sources. If no point sources are present the wasteload allocation is zero. If no nonpoint sources are present, the load allocation is zero.

McKenzie Creek will have to meet in-stream WQS for pH (6.5-9.0 SU).

WLA Comment

The Waste Load Allocation is set at 6.0 to 9.0 SU for Gad's Hill Quarry. (Permit #MO-0110051). The current permit requires the effluent pH be maintained in the range of 6.0 to 9.0 SU which conforms to the effluent regulations in the quarry's NPDES permit. Requiring the quarry to increase pH by 0.5 SU, is not justified at this time. This is a phased TMDL and as phase I, the quarry will provide pH data on a monthly basis, from several points in McKenzie Creek through the life of their existing permit. This will confirm whether or not the quarry is contributing to pH. If the quarry is contributing then phase II of this TMDL will dictate a revised pH limit for inclusion in the new permit.

LA Comment

The load allocation for pH is established as within the range of 6.5 to 9.0 SU.

Margin of Safety

Submittal describes explicit and/or implicit margin of safety for each pollutant. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided.

An implicit MOS is identified for the low pH impairment. Future monitoring reports will help reveal if water quality standards are being meet. Additionally any new discharger locating in the watershed will have to meet the pH water quality standard of 6.5 to 9.0 SU at end of pipe.

Seasonal Variation and Critical Conditions

Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).

Seasonal variation was considered, and critical conditions were indentified. While it is acknowledged that the pH varies with temperature, the water quality standards for pH do not distinguish between seasons, thewater quality standard of 6.5 to 9.0 SU applies year round.

Public Participation

Submital describes public notice and public comment opportunity, and explains how the public comments were considered in the final TMDL(s).

This TMDL was placed on public notice from June 4 to July 4, 2004; three comments were received and addressed.

Monitoring Plan for TMDL(s) Under Phased Approach

The TMDL identifies the monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used).

McKenzie Creek is included in MDNR's fiscal year 2005 quality assurance project plan (FY05 QAPP) and calls for monitoring three times a year in the upper McKenzie Creek at four sites. Parameters include pH, Alkalinity, Dissolved Oxygen, Sulfate, Specific Conductivity, and others. GS Roofing will also be monitoring pH at the same four locations.

Reasonable assurance

Reasonable assurance only applies when reduction in nonpoint source loading is required to meet the prescribed waste load allocations.

Should Glover Smelter resume operations, they would have to comply with restrictions of Emission of Sulfur Compounds. Monitoring of pH by GS Roofing will evaluate whether the quarry is contributing to acidity in McKenzie Creek. If monitoring indicates the quarry is contributing to the problem, phase II of this TMDL will dictate a revised pH limit for inclusion in the quarry's re-issued NPDES permit.